

**JP 03028220**

AN 1991-083221 [12] WPIX  
DNN N1991-064217 DNC C1991-035388  
TI Electrochromic elements for display or optical shield glass - contg. film  
of polyphenylene polymer derived from fluorene.  
DC A26 A89 P81 U11 U14  
PA (IDEK) IDEMITSU KOSAN CO LTD  
CYC 1  
PI JP 03028220 A 19910206 (199112)\*  
ADT JP 03028220 A JP 1989-163340 19890626  
PRAI JP 1989-163340 19890626  
AB JP 03028220 A UPAB: 19930928

Electrochromic element contains an electrochromic layer of a film of polyphenylene polymer with 3000 or more wt. average molecular wt. contg. the repeating unit of formula (I): (R1 = H, or 1-30C alkyl; R2 = 3-30C alkyl)  
USE/ADVANTAGE - Electrochromic elements for display, or optical shield glass.

In an example Fluorene (10g) was dissolved in ether with addn. of n-butyl lithium (30 ml) soln. and stirred with drops of n-bromohexane (11g) for 4 hrs. to obtain 9-mono hexylfluorene (11 g). Repetition of the reaction gave 9,9-dihexylfluorene (13 g). 9,9-dihexylfluorene was dissolved in chloroform and formed into a film (4 micron) on ITO electrode. An electrolyte soln. (LiBF4/acetonitrile) was added between the ITO electrode and pair electrode (ITO glass) with package of epoxy resin to form EC element.